

AMENDMENTS TO THE CLAIMS:

The following listing of claims will replace all prior versions and listings of claims in the application.

Claim 1 (Currently amended) A multi-stage process for the continuous preparation of thermoplastically processable polyurethane elastomers (TPU) with tensile strengths of > 30 MPa (measured in accordance with EN ISO 527-3), comprising

- a) preparing a prepolymer I by reacting
 - A) at least one organic diisocyanate, with
 - B) a polyol 1 having on average at least 1.8 and not more than 3.0 Zerewitinoff-active hydrogen atoms and a number-average molecular weight \overline{M}_n of 450 to 10,000;
- b) reacting said prepolymer I prepared in a) with
 - C) a polyol 2 comprising an organic phosphorus-containing compound, which is different than polyol 1, wherein said polyol 2 has on average at least ~~1.8 and not more than 3.0~~ 1.5 and not more than 2.5 Zerewitinoff-active hydrogen atoms and a number-average molecular weight \overline{M}_n ~~of 60 to 40,000~~ of 100 to 5,000, and polyol 2 being present in an amount of 0.01 to 50 wt.%, based on the total amount of TPU,to yield a prepolymer II, wherein an equivalent ratio of NCO groups to the sum of NCO-reactive groups of from 1.2:1 to 10:1 is established, based on reaction components (A), (B) and (C);
- c) reacting, in a high-viscosity reactor operating with a high shear energy, said prepolymer II prepared in b) completely with:
 - D) at least one low molecular weight polyol or polyamine having on average at least 1.8 and not more than 3.0 Zerewitinoff-

active hydrogen atoms and a number-average molecular weight \overline{M}_n of 60 to 400 as a chain lengthener; wherein steps a) to c) are optionally carried out in the presence of F) catalysts, and optionally, with the addition of E) 0 to 20 wt.%, based on the total amount of TPU, of further auxiliary substances and additives, with the overall equivalent ratio of NCO groups to the sum of NCO-reactive groups being from 0.9:1 to 1.2:1, based on the sum of all the reaction components of steps a) to c).

Claim 2 (Original) The process of Claim 1, wherein B) said polyol 1 and C) said polyol 2, both of which contain Zerewitinoff-active hydrogen atoms, are selected from the group consisting of (i) polyester-polyols, (ii) polyether-polyols, (iii) polycarbonate-polyols, (iv) polyols which contain nitrogen, phosphorus, sulfur and/or silicon atoms and (v) mixtures thereof.

Claim 3 (Original) The process of Claim 1, wherein D) said low molecular weight polyols containing Zerewitinoff-active hydrogen atoms comprises ethylene glycol, butanediol, hexanediol, 1,4-di-(β -hydroxyethyl)-hydroquinone, or 1,4-di-(β -hydroxyethyl)-bisphenol A.

Claim 4 (Original) The process of Claim 1, wherein A) said organic diisocyanate comprises an aromatic diisocyanate.

Claim 5 (Original) The process of Claim 4, wherein said aromatic diisocyanate comprises a diphenylmethane-diisocyanate isomer mixture having a 4,4'-diphenylmethane-diisocyanate content of > 96 wt.%.

Claim 6 (Cancelled)

Claim 7 (Original) The of Claim 1, wherein steps a) and b) are carried out in separate reactors.

Claim 8 (Original) The process of Claim 1, wherein step c) is carried out in a separate reactor than steps a) and b).

Claim 9 (Original) The process of Claim 1, wherein step c) is carried out in a multi-screw extruder.